UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,174	03/23/2004	Sanjeev K. Sharma	SAMINF.001A	4832

20995   7590   04/01/2009
KNOBBE MARTENS OLSON & BEAR LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614

EXAMINER
STEPHEN, EMEM O

ART UNIT	PAPER NUMBER
2617	

NOTIFICATION DATE	DELIVERY MODE
04/01/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *12/10/08*.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-27* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-27* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *23 March 2004* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments with respect to claims 1-27 have been considered but are

moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

    1.   Determining the scope and contents of the prior art.
    2.   Ascertaining the differences between the prior art and the claims at issue.
    3.   Resolving the level of ordinary skill in the pertinent art.
    4.   Considering objective evidence present in the application indicating
          obviousness or nonobviousness.

4.   Claims 1, 11-13, 18, 23, and 26 are rejected under 35 U.S.C. 103(a) as being

unpatentable over US Pub. 20040203828 A1 to Mirchandani et al. in view of US Pat.

No. 7,403,505 B2 to Yoon et al.

        Regarding claims 1, 11, 18, and 23, Mirchandani discloses a method of load

balancing in a terrestrial wireless communication system(see fig. 1) including an access

node (access point 20), the method comprising: communicating data wirelessly between

the access node (access point) and a plurality of terminals (communication unit 14) via

a plurality of channels [12] (see figs, 1-2, and par. 26), wherein the plurality of terminals and the access node (access point) form a wireless local area network [local coverage area 13] (pars. 41-43); determining, at the access node, an overloaded channel from the plurality of channels (see fig. 5, and pars. 47-52); and transferring, at the access node, a load from the overloaded channel to a less loaded channel of the plurality of channels (par 51 lines 7-14, par. 58 lines 7-12, and par. 59).

However, Mirchandani fails to disclose selecting a link from a plurality of links in the overloaded channel; and transferring the selected link from the overloaded channel to a less loaded channel of the plurality of channels.

Yoon disclose selecting a link from a plurality of links in the overloaded channel (col. 9 line 40-48); and transferring the selected link from the overloaded channel to a less loaded channel of the plurality of channels (col. 10 lines 12-22, and 39-42).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Mirchandani with the teachings of Yoon by selecting a link from a plurality of links in the overloaded channel; and transferring the selected link from the overloaded channel to a less loaded channel of the plurality of channels for the purpose of balancing load.

Regarding claims 12-13, the combination of Mirchandani and Yoon disclose the apparatus of claim 11, wherein the control module (Mirchandani, see fig. 2, and par. 44, i.e., controller 21) and the memory are embedded in the access point (par. 48).

Regarding claims 26, the combination of Mirchandani and Yoon discloses the apparatus of claim 11, wherein each channel includes a plurality of links (Mirchandani, see figs. 1-2).

5.   Claims 2-10, 14-16, 17, 19-22, 24-25, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mirchandani in view of Yoon, and further in view of US Pub. 2003/0134642 A1 to Kostic et al.

Regarding claims 9, 10, and 17, Mirchandani a method of load balancing in a terrestrial wireless communication system including an access node (Mirchandani, see fig. 1), the method comprising: providing plurality of channels between the access node (access point) and a plurality of terminals such that the access point is in data communication with the plurality of terminals via the plurality of channels (Mirchandani, see figs, 1-2, and par. 26), determining an overloaded channel from the plurality of channels (Mirchandani, see fig. 5); selecting a channel from a plurality of channel in the overloaded channel; and transferring the selected channel to a less loaded channel of the plurality of channels (Yoon, col. 10 lines 12-22, and 39-42) based on at least on of: the quality of service level required for the selected link and a received signal strength indication value in the less loaded channel (Mirchandani, pars. 18-19, 48-49, par 51 lines 7-14, par. 58 lines 7-12, and par. 59).

However, Mirchandani fails to disclose selecting a link from a plurality of links in the overloaded channel; and transferring the selected link from the overloaded channel to a less loaded channel of the plurality of channels.

Yoon disclose selecting a link from a plurality of links in the overloaded channel (col. 9 line 40-48); and transferring the selected link from the overloaded channel to a less loaded channel of the plurality of channels (col. 10 lines 12-22, and 39-42), based on at least on of: the quality of service level required for the selected link and a received signal strength indication value in the less loaded channel (Yoon col. 12 lines 53-56).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Mirchandani with the teachings of Yoon by selecting a link from a plurality of links in the overloaded channel; and transferring the selected link from the overloaded channel to a less loaded channel of the plurality of channels for the purpose of balancing load.

However, the combination of Mirchandani and Yoon fails to disclose determining an overloaded channel based on at least one of: the number of packets pending in each of the channels and bandwidths, which are currently being used in each of the channels.

Kostic discloses determining an loading based on at least one of: the number of packets pending in each of the channels and bandwidths which are currently being used in each of the channels; based on at least on of: the quality of service level required and a received signal strength indication value in the less loaded channel (pars. 20, 22-23, and 37-38).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to modify the invention of Mirchandani by using the determined

number of packets and bandwidths which are currently being used in each of the

channels in overloaded channel determination as taught by Kostic for the purpose of

maximizing data rate.

Regarding claims 2, 14-16, and 19 -22, the combination of Mirchandani and

Yoon discloses the method of claim 1, wherein the determining comprises: calculating

loads of each of the plurality of channels, determining the overloaded channel from the

plurality of channels based on the calculated loads; and selecting a link from the

overloaded channel (Mirchandani, pars. 18-19, 48-49, par 51 lines 7-14, par. 58 lines 7-

12, and par. 59).

However, Mirchandani fails to disclose calculating loads based on at least one of: the

number of packets pending in each of the channels and bandwidths, which are currently

being used in each of the channels.

Kostic discloses calculating loads based on at least one of: the number of packets

pending in each of the channels and bandwidths which are currently being used in each

of the channels (pars. 20, and 38).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to modify the invention of Mirchandani, by calculating loads based

on at least one of: the number of packets pending in each of the channels and

bandwidths which are currently being used in each of the channels as taught by Kostic

for the purpose of maximizing data rate.

Regarding claims 3-8, the combination of Mirchandani, Yoon, and Kostic

discloses the method of claim 2, wherein the transferring is performed in case the

quality of service level required for the selected link is met in the less loaded channel,

wherein the transferring comprises swapping the selected link of the overloaded

channel with a link of the less loaded channel (Mirchandani, pars. 18-19, and 48-49;

Kostic, pars. 20, 30-33, and 38).

Regarding claims 24-25, and 27, the combination of Mirchandani, Yoon, and

Kostic discloses wherein each channel includes a plurality of links (Yoon see figs. 1,

and col. 9 lines 2-5).

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to EMEM STEPHEN whose telephone number is 571 272

8129. The examiner can normally be reached on 8-5 Mon-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Charles Appiah can be reached on 571 272 7904. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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published applications may be obtained from either Private PAIR or Public PAIR.

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ES
03/24/2009

/Charles N. Appiah/
Supervisory Patent Examiner, Art Unit 2617